

SUPPLEMENT TECHNICAL MANUAL

ORGANIZATIONAL/UNIT AND INTERMEDIATE MAINTENANCE

AVIONIC CLEANING AND CORROSION PREVENTION/CONTROL (ATOS)

THIS PUBLICATION SUPPLEMENTS TO 1-1-689 (NAVAIR 16-1-540 AND ARMY TM 1-1500-343-23) DATED 1 OCTOBER 1996. Reference to this supplement will be made on the title page of the basic manual by personnel responsible for maintaining the publication in current status.

COMMANDERS ARE RESPONSIBLE FOR BRINGING THIS SUPPLEMENT
TO THE ATTENTION OF ALL AFFECTED AF PERSONNEL

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1 MAY 2000

1. PURPOSE.

To reflect changes to the basic manual as indicated.

2. INSTRUCTIONS.

- a. Page 4-32, the **CAUTION** prior to paragraph 4-9.5a. is changed to read as indicated below:

CAUTION

No tape other than pressure sensitive tape, MIL-T-22085, Type II, is authorized for use on waveguides or electrical connectors. Air Force, use TO 00-25-234 instructions for waveguides and electrical connectors.

- b. Appendix D is added following page C-1/(C-2 blank), starting with page D-1 as follows:

APPENDIX D

TRACK 8 CLEANING PROCEDURES

D-1. GENERAL.

- a. The referenced cleaning equipment is representative for these procedures. Suitable substitutes may be used. Figure D-1 shows a representative cleaning line layout and typical space requirements. Also included in this supplement are the associated cleaning procedures. A typical portable washer (CTM4) is offered in both automatic and manual models and requires 1 square meter of shop floor space and a 110 or 220 volt source.
- b. Although the information presented in this procedure is based upon the evaluation of CHEM-TECH, International Inc. equipment and associated processes, the Track 8 procedures can be tailored to other commercially available equipment and cleaning agents.

D-2. CLEANING EQUIPMENT.

Refer to Table D-1 for the physical characteristics and facility requirements for the Track 8 cleaning line of equipment.

D-3. TEST CLEANING AGENTS.

WARNING

Some cleaning chemicals may be toxic and flammable. Avoid contact with skin and eyes. Avoid breathing vapors. Use with adequate ventilation. Keep away from heat, sparks and flame. Avoid contact with strong oxidizing agents. Protection: neoprene gloves and chemical goggles; faceshield and protective clothing required when splashing is possible or expected; half-mask respirator with organic vapor cartridge required in poorly ventilated areas.

CAUTION

Unless designated otherwise by the cognizant field activity or manufacturer, spent cleaning materials shall be segregated and stored as regulated waste for ultimate off-site disposition via licensed contractor.

Cleaning Agents. CT-1 is a water-based multi-purpose cleaning detergent used to clean electromechanical and electronic assemblies. CT-2L is a single step cleaning agent or supplemental treating agent following CT-1 cleaning. CT-2L is a water displacement agent.

D-4. AVIONIC EQUIPMENT.

CAUTION

Caution shall be exercised to ensure there will be no adverse effects on avionic equipment performance as a result of the cleaning process.

D-5. TEST EQUIPMENT. Table D-1 lists specific cleaning equipment or the respective equivalent referenced for the Track 8 cleaning process.

D-6. CLEANING PROCEDURES.

D-6.1. Equipment Preparation. A thorough inspection of the item to be cleaned is important to ensure that the process and cleaning agents are compatible with the manufacturer's recommendations.

D-6.2. Cleaning Agent Preparation. Prepare cleaning agent in accordance with Table D-2.

D-6.3. **Cleaning Procedure.** There are two batch type Track 8 cleaning procedures: CT-1/CT-2L Cleaning Process and CT-1/CT-2L Cleaning Process with Ultrasonics.

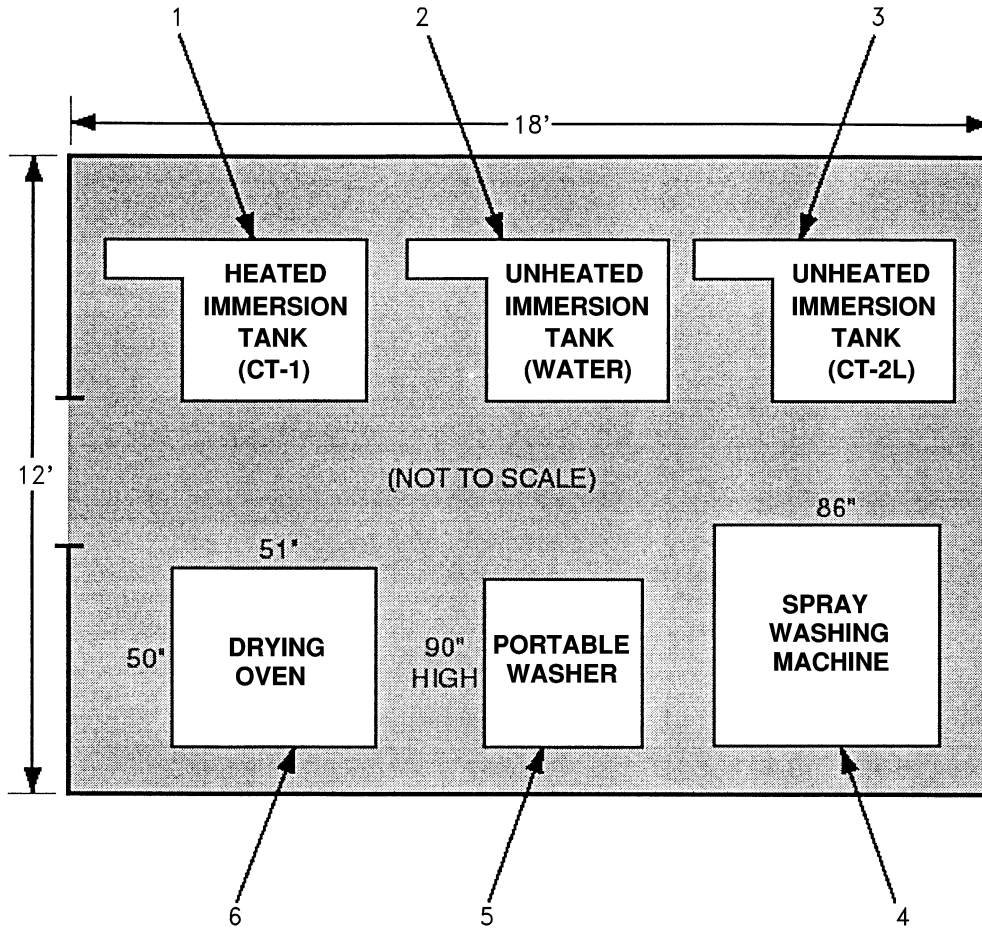
CAUTION

Refer to manufacturer supplied material safety data sheets (MSDS) for applicable usage precautions and appropriate personnel protective equipment.

D-6.3.1. **(CT-1, CT-2L) Cleaning Process.**

NOTE

Heated water will accelerate the cleaning process.



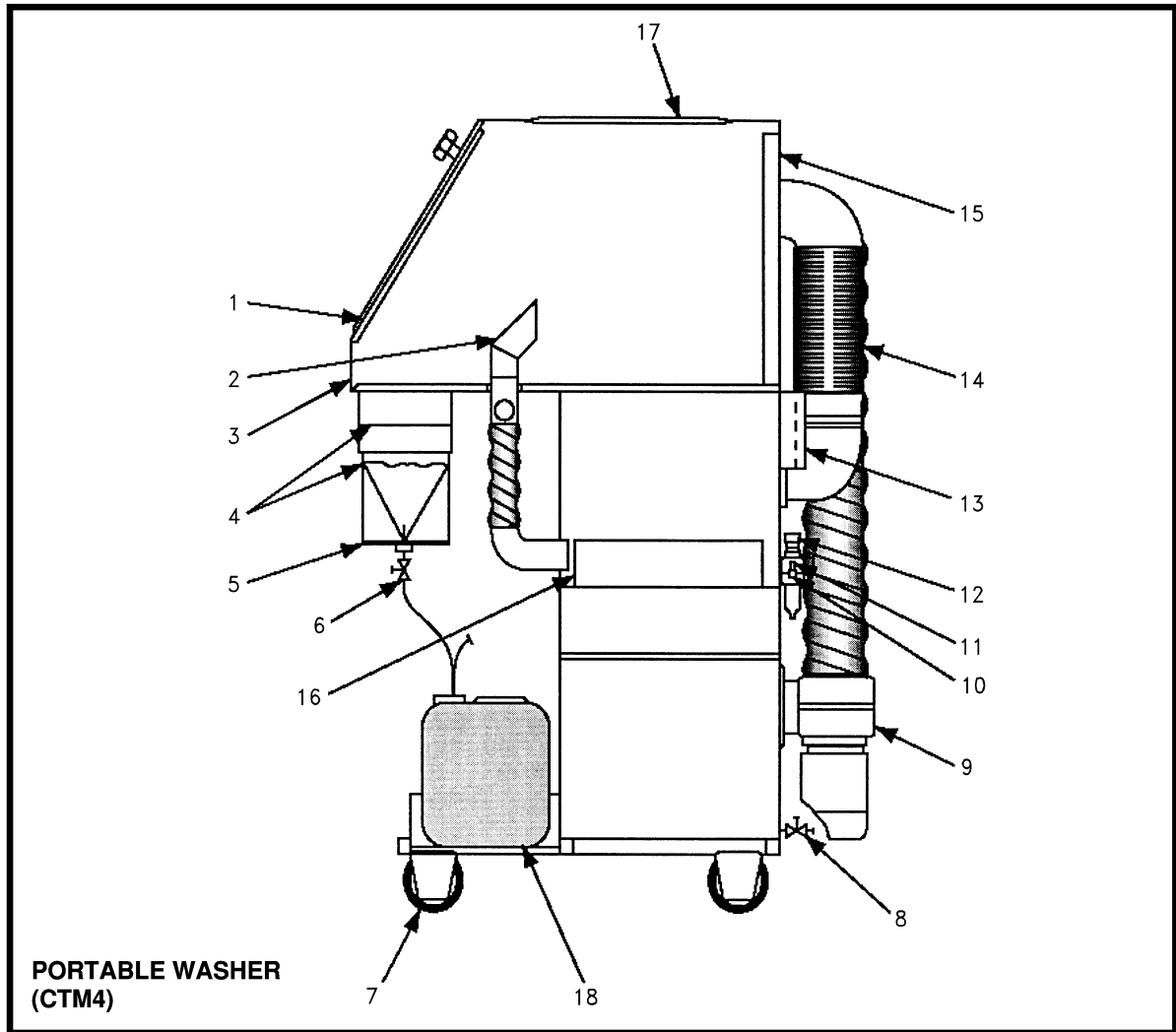
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LEGEND:

1. HEATED IMMERSION TANK (CT-1) (CTM1H)
2. UNHEATED IMMERSION TANK (WATER) (CTM1U)
3. UNHEATED IMMERSION TANK (CT-2L) (CTM1U)
4. SPRAY WASHING MACHINE (CTM2)
5. PORTABLE WASHER (CTM4)
6. DRYING OVEN (*CTM444)

* MODEL NUMBER WILL VARY BY SIZE.

Figure D-1. Typical Track 8 Equipment Layout



LEGEND:

- | | |
|--|------------------------------------|
| 1. OPENING INFEED/TURN-UP PISTOL WINDOW SHIELD | 10. CONNECTION FOR SPRAYING PISTOL |
| 2. AIR RETURN NOZZLES | 11. CONNECTION FOR AIR |
| 3. WORKING SPACE | 12. WATER SEPARATOR PRESSURE GAUGE |
| 4. LIQUID FILTER | 13. PROTECTIVE CIRCUIT BREAKER |
| 5. STORAGE TANK | 14. EXHAUST AIR CHARCOAL FILTER |
| 6. DISCHARGE VALVE | 15. AIR FILTER |
| 7. LOCKING ROLLERS | 16. INSPECTION LID |
| 8. DISCHARGE VALVE | 17. WINDOW SHIELD |
| 9. BLOWER MOTOR | 18. TANKS FOR CLEANSING AGENTS |

Figure D-2. Portable Washer (CTM4)

Table D-1. Cleaning Equipment

Equipment	CHEM-TECH Model No.	Qty	Width	Depth	Height	Weight	Facility requirements
(Heated) Immersion Tank (CT-1)	CTM1H (See note 1)	1	63 in.	25 in.	37 in.	200 lbs	120 VAC
(Unheated) Rinse Tank (Deionized Water)	CTM1U (See note 1)	1	63 in.	25 in.	37 in.	200 lbs	Fresh Water Hook Up
(Unheated) Immersion Tank (CT-2L)	CTM1U (See note 1)	1	63 in.	25 in.	37 in.	200 lbs	N/A
Spray Washing Machine	CTM2 (See note 1) (See note 2)	1	48 in.	34 in.	86 in.	750 lbs	220 VAC, Three Phase
							Compressed Air Source (90 psi minimum)
Drying Oven	CTM444 (See note 1)	1	55 in.	51 in.	90 in.	800 lbs	220 VAC, Three Phase
Portable Washer (See figure D-2.)	CTM4	1	30 in.	32 in.	55 in.	275 lbs	110 or 220 VAC, Single Phase
							Compressed Air Source (90 psi minimum)
NOTE 1: Alternate equipment is commercially available from a range of manufacturers.							
NOTE 2: A facility air exhaust system is recommended to ensure compliance with applicable industrial ventilation and regulatory requirements. State and local air quality requirements may also apply.							

Table D-2. Cleaning Agent Preparation

Agent identification	Agent description/test role	Bulk quantity
CT-1	Shipped as concentrate. Mix 1/5 w/deionized water.	1, 5, or 55 gal
CT-2L	No preparation required. Use as supplied	5 or 55 gal

- Mix CT-1 with five parts water (manufacturer recommended concentration).
- Heat CT-1 solution to approximately 130°F (55°C). Heating will accelerate the cleaning process.
- (Light Cleaning) Place component to be cleaned in a basket or on a grate or stand (preferably stainless steel) and submerge in CT-1 solution 1-inch above the bottom of the container for approximately 5 minutes.

CAUTION

Once the component is submerged into the cleaning agent, it should be checked for effect on any markings after 1 to 3 minutes and verified every 3 to 5 minutes thereafter.

- d. (Heavy/Corrosion) Place component to be cleaned in a basket or on a grate or stand (preferably stainless steel) and submerge in CT-1 solution 1 inch above the bottom of the container for approximately 30 minutes.
- e. When soil appears loose, remove component from tank.
- f. Soak or spray with deionized water to remove soil and CT-1.
- g. If soil is not removed, lightly scrub and repeat steps c through g.

WARNING

CT-2L is not to be heated or diluted with water. When heated above flash point of 140°F will release vapors. Vapors when mixed with air and exposed to an ignition source can burn in an open environment or explode when confined.

- h. (CT-2L Soak Method) Using a grate or stand (preferably stainless steel) in the bottom of the CT-2L container, soak component in the agent for 2 to 5 minutes. Water will drain to the bottom.
- i. (CT-2L Spray Method) Spray clean component with CT-2L, paying particular attention to areas where water or loose contaminants may be trapped.
- j. If residue is still present, soak or spray again in accordance with steps h or i.
- k. Blow off CT-2L in the spray washer (CTM4 or CTM2). This step will decrease drying time and conserve CT-2L.
- l. Dry using a heat lamp, hot air, or a drying oven.

D-6.3.2 (CT-1, CT-2L) Cleaning Process (Ultrasonics).

WARNING

Ultrasonic cleaning may be harmful to soft tissue or skin. Do not place hands in tank when unit is in operation.

NOTE

- Heated water will accelerate the cleaning process.
 - For initial operation and whenever the solution is changed, degassing is required.
 - Ensure that the ultrasonic frequency is 40 MHZ or higher.
- a. (Initial/Changed Solution) Degas solution by activating ultrasonics for 20 to 30 minutes prior to commencing the cleaning process.
 - b. Mix CT-1 with five parts water (manufacturer recommended concentration).
 - c. Heat CT-1 solution to approximately 130°F (55°C). Heating will accelerate the cleaning process.
 - d. (Light Cleaning) Place component to be cleaned in a basket or on a grate or stand (preferably stainless steel). Submerge component in an ultrasonic tank of CT-1 solution 1 inch above the bottom of the container for approximately 1 to 3 minutes.

CAUTION

Once the component is submerged into the cleaning agent, it should be checked for effect on any markings after 1 to 3 minutes and verified every 3 to 5 minutes thereafter.

- e. (Heavy/Corrosion) Place component to be cleaned in a basket or on a grate or stand (preferably stainless steel) and submerge in CT-1 solution 1 inch above the bottom of the container for approximately 10 minutes.

NOTE

If component is not cleaned in 10 minutes, component should be removed and inspected to determine whether to resoak in the CT-1 cleaning agent.

- f. Soak or spray with deionized water to remove soil and CT-1.
- g. If soil is not removed, lightly scrub and repeat steps d through g.

WARNING

CT-2L shall not be heated or diluted with water. When heated above flash point of 140°F will release vapors. Vapors when mixed with air and exposed to an ignition source can burn in an open environment or explode when confined.

- h. (CT-2L Soak Method) Using a basket, grate, or stand (preferably stainless steel) in the bottom of the CT-2L container, soak component in the agent for 2 to 5 minutes. Water will drain to the bottom.
- i. (CT-2L Spray Method) Spray clean component with CT-2L paying particular attention to areas where water or loose contaminants may be trapped.
- j. If residue is still present, soak or spray in accordance with step h or i.
- k. Blow off CT-2L in the spray washer (CTM4 or CTM2). This step will decrease drying time and conserve CT-2L.
- l. Dry using a heat lamp, hot air, or a drying oven.

D-7. DISPOSAL.

D-7.1. **CT-1.** CT-1 is biodegradable. Disposal depends on the contaminant being removed and the applicable state and local regulations. Landfill solids at permitted sites via licensed contractor in accordance with applicable federal, state and local regulations.

D-7.2. **CT-2L.** Landfill solids at permitted sites via licensed contractor. Used products may be classified as hazardous waste (ignitable) due to low flash point and may be incinerated or burned for energy recovery. CT-2L has a heating value of 20156 BTU/lb. Either option must be performed in accordance with federal, state and local regulations.

THE END